

STATE OF ALASKA
Application for Permits to Mine in Alaska (APMA)

Single Year Multi-year - Start: March 1, 2011 Finish: March 1, 2012 APMA (District/Year/Number): 9339

What type activity are you planning to perform? (1) <input type="checkbox"/> Exploration/Reclamation <input type="checkbox"/> Access Equipment <input type="checkbox"/> Mining/Reclamation <input type="checkbox"/> Suction Dredge <input checked="" type="checkbox"/> Hardrock Exploration/Reclamation <input type="checkbox"/> Reclamation		Surface estate of mineral properties: (2) <input checked="" type="checkbox"/> State (General) <input type="checkbox"/> State (Mental Health) <input type="checkbox"/> Private (Patented) <input type="checkbox"/> Federal <input checked="" type="checkbox"/> Private (Native Corp.) <input type="checkbox"/> City or Borough	
Mineral Property Owners: (3) Company name and contact name if applicable Teck American Incorporated Catherine Suda Manager, US Land & Assets	Lessee: (4) Company name and contact name if applicable N/A	Operator: (5) Company name and contact name if applicable Teck American Incorporated	
Mailing Address for official correspondence: 501 N Riverpoint Blvd., Suite 300 Spokane, WA 99202	Mailing Address for official correspondence: 501 N Riverpoint Blvd., Suite 300 Spokane, WA 99202	Mailing Address for official correspondence: 501 N Riverpoint Blvd., Suite 300 Spokane, WA 99202	
Home phone# (winter): N/A	Home phone# (winter): N/A	Home phone# (winter): N/A	
Work phone# (winter): 509-747-6111	Work phone# (winter): 509-747-6111	Work phone# (winter): 509-747-6111	
Home phone# (summer): N/A	Home phone# (summer): N/A	Home phone# (summer): N/A	
Work phone# (summer): 509-747-6111	Work phone# (summer): 509-747-6111	Work phone# (summer): 509-747-6111	
Cell/Satellite: N/A	Cell/Satellite: N/A	Cell/Satellite: N/A	
FAX: 509-459-4400	FAX: N/A	FAX: 509-459-4400	
E-mail: <u>cathy.suda@teck.com</u>	E-mail: N/A	E-mail: <u>cathy.suda@teck.com</u>	
Winter contact effective dates _____ to _____ Summer contact effective dates _____ to _____	Winter contact effective dates _____ to _____ Summer contact effective dates _____ to _____	Winter contact effective dates _____ to _____ Summer contact effective dates _____ to _____	
Project Name If Applicable: (6) Noatak Exloration	# of Workers: (7) variable	Start-Up/Shut Down: (Month/Day) (8) <u>March 1</u> to <u>October 15</u>	
Mining District: (9) Red Dog	Applicable USGS Map: (10) DeLong Mts. A2 & A3, Noatak D2 & D3	On What Stream Is This Activity? (11) Tributaries of Ikalukrok and Wulik	
Legal Description of mineral properties to be worked and other projected related activities (MTRS): (12) State Mining Claims in portions of T30-33N, R17-21W Leased areas in portions of T30-32N, R17, 18 and 19W			
Internal Use Only: Date Application Received Complete: _____ Adjudicator: _____ LAS Entry: _____			

CID: 109842

CID: _____

CID: _____



Via FEDEX
And by email

Mr. Jack Kerin
Alaska Department of Natural Resources
Division of Mining, Land and Water
3700 Airport Way
Fairbanks, AK 99709-4699
jack.kerin@alaska.gov

February 2, 2018

Dear Jack:

Re: MLUP 17- 9339 Annual Activity for 2018

Enclosed is the annual exploration plan for work under our MLUP authorization in the Red Dog District.

The following supporting information is included:

An Exploration Plan Narrative
Location maps of our activities

A hard copy of the information will be sent to your office.

Sincerely,

A handwritten signature in cursive script, appearing to read "Catherine Suda", is positioned above the typed name.

Catherine Suda
Manager, U.S. Land & Assets

Enclosures

Cc: Jeffrey Rogers, jeffrey.rogers@alaska.gov

**Exploration Plan Narrative
2018 Seasonal Exploration Program Detail
APMA 9339 Multi-Year Land Use Permit
USACE NW6 Permit Update
And
NAB Permit Multi-Year Permit Update**

Project

Noatak District Exploration – State Mining Claims, NANA Lands

Type of Project

Mineral Exploration –Drilling, Geophysical Surveys, Geologic Mapping and Soil/Stream Sediment Sampling, collecting baseline data for possible future road building

Activity Schedule

2018 Exploration and Geotechnical Drilling

Start date: On or about May 15, 2018

End Date: On or about October 15, 2018

2018 Surface Exploration

Start Date: On or about March 15, 2018

End date: On or about September 30, 2018

2018 Road Route Planning Geotechnical Drilling (auger holes)

Start Date: On or after February 25, 2018

End date: On or about April 30, 2018

Operator Information

Teck American Incorporated
501 N. Riverpoint Blvd. Suite 300
Spokane, WA, 99202
509-747-6111

Contact

Catherine Suda
Manager, US Land & Assets
501 N. Riverpoint Blvd. Suite 300
Spokane, WA 99202
509-623-4567

Field Representatives on site

James McCusker, David Larimer, Neil Grumbley
Teck Resources Limited
Suite 3300, 550 Burrard Street,
Vancouver, BC, V6C 0B3
Vancouver Number: 604-699-4000
Red Dog Field Site Number: 907-754-5275

Property Owner

Teck American Incorporated - State Mining Claims in T30-33N, R17-21W
NANA Regional Corporation – Teck Alaska leased areas in T30-32N, R17-19W

State Mining Claims

CASE_ID	CSTMRNM	CLAIM_NAME	NTPSTDT
ADL 725332	Teck Cominco American	AQ 1014 Incorpor Ated	07-SEP-17
ADL 725333	Teck Cominco American	AQ 1015 Incorpor Ated	07-SEP-17
ADL 725334	Teck Cominco American	AQ 1016 Incorpor Ated	07-SEP-17
ADL 725335	Teck Cominco American	AQ 1017 Incorpor Ated	07-SEP-17
ADL 725336	Teck Cominco American	AQ 1018 Incorpor Ated	07-SEP-17
ADL 725337	Teck Cominco American	AQ 1019 Incorpor Ated	07-SEP-17
ADL 725338	Teck Cominco American	AQ 1020 Incorpor Ated	07-SEP-17
ADL 725339	Teck Cominco American	AQ 1021 Incorpor Ated	07-SEP-17
ADL 725340	Teck Cominco American	AQ 1022 Incorpor Ated	07-SEP-17
ADL 725341	Teck Cominco American	AQ 1023 Incorpor Ated	07-SEP-17
ADL 725343	Teck Cominco American	AQ 1025 Incorpor Ated	07-SEP-17
ADL 725344	Teck Cominco American	AQ 1026 Incorpor Ated	07-SEP-17
ADL 725345	Teck Cominco American	AQ 1027 Incorpor Ated	07-SEP-17
ADL 725346	Teck Cominco American	AQ 1028 Incorpor Ated	07-SEP-17
ADL 725347	Teck Cominco American	AQ 1029 Incorpor Ated	07-SEP-17
ADL 725348	Teck Cominco American	AQ 1030 Incorpor Ated	07-SEP-17
ADL 725349	Teck Cominco American	AQ 1031 Incorpor Ated	07-SEP-17
ADL 725350	Teck Cominco American	AQ 1032 Incorpor Ated	07-SEP-17
ADL 725351	Teck Cominco American	AQ 1033 Incorpor Ated	07-SEP-17
ADL 725352	Teck Cominco American	AQ 1034 Incorpor Ated	07-SEP-17
ADL 725353	Teck Cominco American	AQ 1035 Incorpor Ated	07-SEP-17
ADL 725354	Teck Cominco American	AQ 1036 Incorpor Ated	07-SEP-17
ADL 725355	Teck Cominco American	AQ 1037 Incorpor Ated	07-SEP-17
ADL 725356	Teck Cominco American	AQ 1038 Incorpor Ated	07-SEP-17
ADL 725377	Teck Cominco American	AQ 1059 Incorpor Ated	08-SEP-17
ADL 725378	Teck Cominco American	AQ 1060	08-SEP-17

CASE_ID	CSTMRNM	CLAIM_NAME	NTPSTDT
	Incorpor Ated		
ADL 725379	Teck Cominco American	AQ 1061	09-SEP-17
	Incorpor Ated		
ADL 725380	Teck Cominco American	AQ 1062	09-SEP-17
	Incorpor Ated		
ADL 725388	Teck Cominco American	AQ 1070	09-SEP-17
	Incorpor Ated		
ADL 725389	Teck Cominco American	AQ 1071	09-SEP-17
	Incorpor Ated		
ADL 725390	Teck Cominco American	AQ 1072	09-SEP-17
	Incorpor Ated		
ADL 725391	Teck Cominco American	AQ 1073	09-SEP-17
	Incorpor Ated		
ADL 725392	Teck Cominco American	AQ 1074	09-SEP-17
	Incorpor Ated		
ADL 725393	Teck Cominco American	AQ 1075	09-SEP-17
	Incorpor Ated		
ADL 725399	Teck Cominco American	AQ 1081	09-SEP-17
	Incorpor Ated		
ADL 725400	Teck Cominco American	AQ 1082	09-SEP-17
	Incorpor Ated		
ADL 725401	Teck Cominco American	AQ 1083	09-SEP-17
	Incorpor Ated		
ADL 725402	Teck Cominco American	AQ 1084	09-SEP-17
	Incorpor Ated		
ADL 725403	Teck Cominco American	AQ 1085	09-SEP-17
	Incorpor Ated		
ADL 725404	Teck Cominco American	AQ 1086	09-SEP-17
	Incorpor Ated		
ADL 725405	Teck Cominco American	AQ 1087	09-SEP-17
	Incorpor Ated		
ADL 725406	Teck Cominco American	AQ 1088	09-SEP-17
	Incorpor Ated		
ADL 725411	Teck Cominco American	AQ 1093	09-SEP-17
	Incorpor Ated		
ADL 725412	Teck Cominco American	AQ 1094	09-SEP-17
	Incorpor Ated		
ADL 725413	Teck Cominco American	AQ 1095	09-SEP-17
	Incorpor Ated		
ADL 725414	Teck Cominco American	AQ 1096	09-SEP-17
	Incorpor Ated		
ADL 725415	Teck Cominco American	AQ 1097	09-SEP-17
	Incorpor Ated		
ADL 725416	Teck Cominco American	AQ 1098	09-SEP-17
	Incorpor Ated		
ADL 725417	Teck Cominco American	AQ 1099	09-SEP-17
	Incorpor Ated		
ADL 725418	Teck Cominco American	AQ 1100	09-SEP-17
	Incorpor Ated		
ADL 725423	Teck Cominco American	AQ 1105	09-SEP-17
	Incorpor Ated		
ADL 725424	Teck Cominco American	AQ 1106	09-SEP-17
	Incorpor Ated		
ADL 725425	Teck Cominco American	AQ 1107	09-SEP-17
	Incorpor Ated		

CASE_ID	CSTMRNM	CLAIM_NAME	NTPSTDT
ADL 725426	Teck Cominco American Incorpor Ated	AQ 1108	09-SEP-17

Legal Descriptions

During 2017 TAI located new 160-acre MTRS claims over the entire property. All claim names and numbers used in this Plan Narrative and subsequent amendments will reference the new claims.

The general exploration area including 2018 planned activity locations is depicted on the attached Overview Map 1; Additional detailed locations are provided on the detail maps as indicated throughout this application.

Drill Hole Locations

The following exploration drill locations are planned for 2018 through 2019 on TAI mining claims and NANA lease areas:

Site_ID	Claim Name	ADL	Permitted 2017/ not yet drilled	Easting	SPNorthing	Elevation	Total Depth	Azimuth	Initial Dip	comments
AKT_PDH003	AQ 1022	ADL725340		572849.44	5185668.47	1247.94	2100	110	-90	
AKT_PDH005	AQ 1021	ADL725339		570672.92	5184892.36	1226.83	2950	90	-90	
AKT_PDH007	AQ 1022	ADL725340	x	572109	5185680	1157.37	2350	90	-90	
AKT_PDH008	AQ 1021	ADL725339	x	570108	5184990	1267.16	3400	80	-90	Foundations built
AKT_PDH009	AQ 1021	ADL725339		570771.78	5185360.56	1357.59	3150	80	-90	
AKT_PDH010	AQ 1022	ADL725340		571136.14	5185574.44	1332.51	2950	80	-90	
AKT_PDH011	AQ 1021	ADL725339		569518.89	5185093.89	1341.51	3750	90	-90	
AKT_PDH012	AQ 1022	ADL725340		571578.56	5186301.81	1209.97	2700	90	-90	
AKT_PDH020	AQ 1022	ADL725340	x	572455	5185880	1204.65	2300	90	-90	
AKT_PDH021	AQ 1021	ADL725339	x	570216.53	5185513.33	1257.89	3500	90	-90	Foundations built
AKT_PDH022	AQ 1021	ADL725339		570897.94	5185924.44	1369.3	3200	90	-90	
AKT_PDH023	AQ 1021	ADL725339	x	569776	5185720	1285.1	3700	60	-90	Foundations built
AKT_PDH024	AQ 1021	ADL725339	x	570469	5186120	1402.7	3500	60	-90	Foundations built
AKT_PDH030	AQ 1022	ADL725340	x	572162	5184790	1127.11	2000	110	-90	
AKT_PDH031	AQ 1022	ADL725340	x	572509	5184990	1202.35	1432	110	-90	To complete from 2017
AKT_PDH032	AQ 1022	ADL725340	x	572855	5185190	1341.71	2100	110	-90	
AKT_PDH033	AQ 1022	ADL725340		572121.55	5185241.94	1148.6	2150	110	-90	
AKT_PDH034	AQ 1022	ADL725340	x	571416	5185280	1289.36	2700	90	-90	
AKT_PDH039	AQ 1022	ADL725340		571673.11	5185889.03	1220.38	2700	80	-90	
AKT_PDH051	AQ 1022	ADL725340	x	572709	5184640	1238.36	1900	130	-90	
AKT_PDH053	AQ 1022	ADL725340	x	571816	5184590	1173.11	2150	110	-90	
AKT_PDH056	AQ 1021	ADL725339	x	570030	5184480	1330.17	3350	90	-90	
AKT_PDH059	AQ 1021	ADL725339	x	570816	5186320	1383.84	3250	60	-90	Foundations built
AKT_PDH066	AQ 1022	ADL725340	x	572444	5184495	1149.58	1900	130	-90	
AKT_PDH069	AQ 1021	ADL725339	x	569484	5184630	1384	535	90	-90	To complete from 2017
AKT_PDH081	AQ 1027	ADL725345		571123	5184190	1142.67	2300	110	-90	
AKT_PDH092	AQ 1015	ADL725333		571655	5187270	1278	2800	60	-90	Hydro/Geotech
Geotech_DH1	AQ 1033	ADL725351		569381	5179687	1385	2241	90	-72.5	Portal Geotech holes

Site_ID	Claim Name	ADL	Permitted 2017/ not yet drilled	Easting	SPNorthing	Elevation	Total Depth	Azimuth	Initial Dip	comments
Geotech_DH2	AQ 1033	ADL725351		569514	5180431	1273	2122	90	-72.5	Portal Geotech holes
Geotech_DH3	AQ 1033	ADL725351		569624	5181174	1234	2082	90	-72.5	Portal Geotech holes
Geotech_DH4	AQ 1028	ADL725346		569660	5181918	1430	2287	90	-72.5	Portal Geotech holes
Geotech_DH5	AQ 1028	ADL725346		569752	5182662	1447	2305	90	-72.5	Portal Geotech holes

Description of Operation

The operations will be completed in stages over the course of the field season. Two exploration holes which were not completed prior to the end of last year due to weather will be drilled this season. Any work not completed in the 2018 season will be slated for 2019 and subsequent seasons as permitted. Additional activity will depend on the previous year's results.

Drilling

The 2018 summer exploration activity will consist of a maximum of 19 drill stations on mining claims from the list of "AKT" proposed drill holes in the table above. Additional drill holes may be completed from other (new) drill stations, time permitting, based on results of the initial drilling. Map 2 illustrates the proposed locations and permitted water sources. We will have six Duralite drills or equivalent equipment and a 2016 Diedrich 120, hollow-stem auger track-mounted drill operating on the exploration project.

Surface disturbance will be minimal and confined to anchor areas of drill platforms and collar area of holes. Drill holes, with the exception of the specifically identified geotechnical auger holes near Red Dog Creek, will be beyond 100 feet of any stream.

Geotechnical field investigations are at the potential future portal site for an exploration decline. This geotechnical drilling will be completed as part of the helicopter-supported summer season program.

It is anticipated that the exploration will continue as long as weather permits. Drilling is scheduled to begin in mid-May after crews have completed safety orientations. Core holes will range from 1500 to 4,000 feet deep depending on site location. We have planned approximately 50,800 feet of drilling in 2018 depending on results and availability of drills. Drill crews operate 24 hours per day, using 2 12-hour shifts.

Teck is evaluating the merits of a future advanced exploration program that would consist of a temporary access road, development of an underground ramp to provide a drill platform for resource drilling, and completing a significant amount of underground exploration resource drilling. Some of the activities described in this narrative are in support of Teck's evaluation of the merits of that program. Permitting for any advanced exploration program will be addressed in the future, under separate cover.

Ground Geophysics, Surveys, Mapping and Sampling

Geologic mapping is tentatively scheduled to cover claims and some NANA lands in portions of T30-32N, R18-19W and T32N, R20W. Map 3 illustrates the general areas and priorities for completing the mapping. Areas targeted for mapping may change dependent on interpretation of previously collected geochemical or geophysical survey results.

Ground gravity surveys are planned over several areas utilizing a field team of 2 people for each survey. Equipment will consist of a gravimeter and RTK DGPS to survey in station locations. No vegetation cutting is planned. The gravity survey work is expected to take 4-6 weeks to complete at an average of 30 stations per day. Gravity survey areas are illustrated on Map 4.

Fault Movement Study

The overall goal of the field evaluation program is to seek field evidence for the existence of late Quaternary-age (post-glacial) fault displacement or deformation in the vicinity of Red Dog Mine (RDM) or conversely, evidence for the absence of such displacement or deformation.

The full study extends beyond the boundaries of the State claims and NANA lands that are part of this application (described as lineament areas a. and b., below). A hand-held auger drilling will be used at selected locations within these areas. See map 1 for the lineament locations.

The field program within this permit will target two fault and lineament areas:

- a. Sivukat Mountain Fault, located about 5 to 6 miles (8 to 10 km) south of RDM; and
- b. Wrench Creek Fault, located about 5 to 6 miles (8 to 10 km) northeast of RDM.

Exploration-Road Planning Activities

A limited program for engineering and geotechnical investigations, permitted but not completed in 2017, will be undertaken in 2018, with the immediate objective of providing options for the permitting and construction of an exploration access road.

Two geotechnical holes (see Map 5 for location) will be drilled prior to the spring thaw to collect information for placement of a bridge. Drilling uses auger drilling tools and geotechnical sampling with LPT spoon and a 300-lb. drop hammer. We will finish the holes with a solid 1" dia. PVC casing for monitoring ground temperatures, and possibly a 2" dia. slotted PVC pipe as a standpipe piezometer if we encounter groundwater. We will backfill the holes with drill cuttings, or filtration sand if drill cuttings are frozen and unusable. If necessary, we will seal the borehole at the surface with bentonite chips.

Hole ID	claim name/ number	Northing	Easting	Type	Depth	Name
GT16-001	NANA	5149146.871	579490.3516	auger/core	30	Red Dog Creek 1
GT16-002	NANA	5149259.239	579488.5	auger/core	30	Red Dog Creek 2

Additional surface evaluations will be conducted at possible two material sites for road construction materials. These sites are both on State land on climes AQ 1073, ADL

725391 and AQ 1097, ADL 725415. Map 6 show the locations proposed for further review.

Access

All summer activities for 2018 are helicopter supported. The geotechnical holes GT-16-001/002 will be drilled in winter and accessed by surface snow roads from the Red Dog Mine site.

Helicopter Support

We will be using a contract helicopter service stationed at the Red Dog mine for transporting personnel and drill equipment. We anticipate using one AStar 350B3 helicopter and most likely an AStar B2 for the second helicopter as support, both supplied by independent contractors. The tail numbers will be provided to NAB per their request prior to placing the units in service on site.

Temporary Water Use Authorizations

Water sources are permitted under TWUA F2015-037 and F2017-055. These locations will not change from last season.

Water for all drill set-ups will be pumped from tributaries of Ikalukrok Creek or from tributaries of the Wulik River, Water is pumped from the creeks into temporary bladders shared by a number of drills, for more efficient management and to reduce overall water consumption. Drill stations will maintain a 100' set back from the creeks

A water usage report will be submitted to ADWR at the end of the drilling season.

Environmental Considerations

Drill Fluids

Drilling activities have been planned to insure the protection of the environment. Any required drilling additives will be non-toxic, non-caustic and biodegradable. MSDS will be required on all chemicals used by contractors during the course of this project. MSDS will be available for review upon request. All activities will be conducted according to Teck American's Drilling Best Management Practices Handbook.

Water Management

Water is pumped from the stream takeout points at a rate of 6 gallons/minute or less. The water used for drilling is recirculated to reduce overall consumption and reduce the amount of additives required during the drilling process. Flow meters are being used to monitor withdrawals of water at the takeout points to ensure we know the rate at which water is withdrawn. Periodic stream flow measurements are taken at the pump sites and reported to the Division of Water Resources at the conclusion of the drill season.

Mud fences will be installed to prevent drill cuttings from running into the streams. All pumping will be set up according to Fish and Game guidelines as described under Fish Habitat below. Cuttings collection management systems are being investigated for implementation during 2018.

Water Quality

Less than 5,000 gallons per day maximum, will be pumped to the drill sites and stored in a temporary tank/bladder before it is pumped down the drill hole. Non-toxic, non-caustic

agents such as DP EZ Mud and Quick Gel may be added to the water to lubricate the drill bit and maximize flushing of cuttings from the hole. At no time will drilling fluids be allowed to enter open water ways.

Solid Waste

All solid refuse will be removed from the drill sites on a daily basis.

Hazardous Substances

Drillers will complete routine oil changes during operations. Absorbent material for potential spills will be kept on site.

Fuel Storage Site

As established in 2017, in order to minimize helicopter trips and conserve fuel usage, a fuel storage cache will be established on claim AQ 1022, ADL 725340.

Site coordinates are NAD 1927 State Plane Alaska 7 FIPS 5007: 572000E 5184400N.

All fuel storage will be managed according to provisions of Section 11 of the MLUP.

Storage will consist of:

- one, 110 gal double walled tank to contain regular Jet Fuel,
- one secondary standard above ground fuel containment (130 gal),
- one 2000W electric generator,
- one 150V/1.5A pump,
- one, 25 foot long hose with a nozzle, and
- one spill kit.

All the equipment and fuel will be sited on adjacent 16x16 foot and 8x12 foot wooden pads, arranged in a way that allows the helicopter to land and the pilot to refuel as needed. The fuel will only remain on-site in 2018 for as long as drilling operations continue. We plan to re-use this fuel storage site during future drill campaigns as long as helicopter support is required.

Fish Habitat

Water may be withdrawn from tributaries which support resident fish species (Dolly Varden) in the area of proposed activity. In order to prevent the obstruction of the efficient passage and prevent fish being sucked into the water pump, the following measures will be taken:

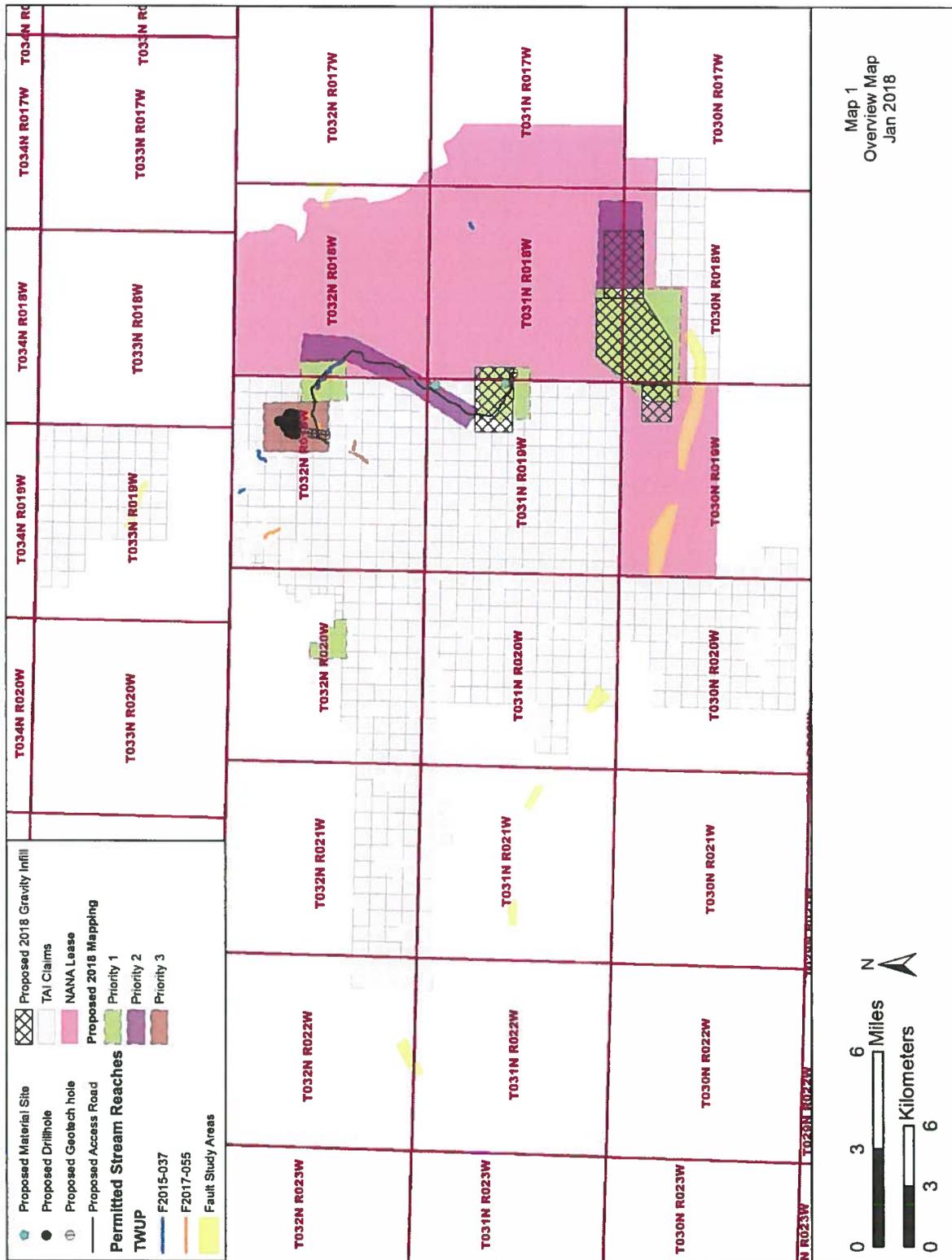
Each water intake structure shall be screened to prevent fish entrapment, entrainment, or injury. The effective screen openings may not exceed 1/4 inch. Water velocity at the screen/water interface may not exceed 0.5 feet per second when the pump is operating. The water pump is checked at minimum daily to ensure all aspects of water withdrawals are operating properly.

Hole Plugging and Abandonment

The mineralized sections of holes are cemented. All drill holes will be sealed in the top 50 ft and capped upon completion of drilling.

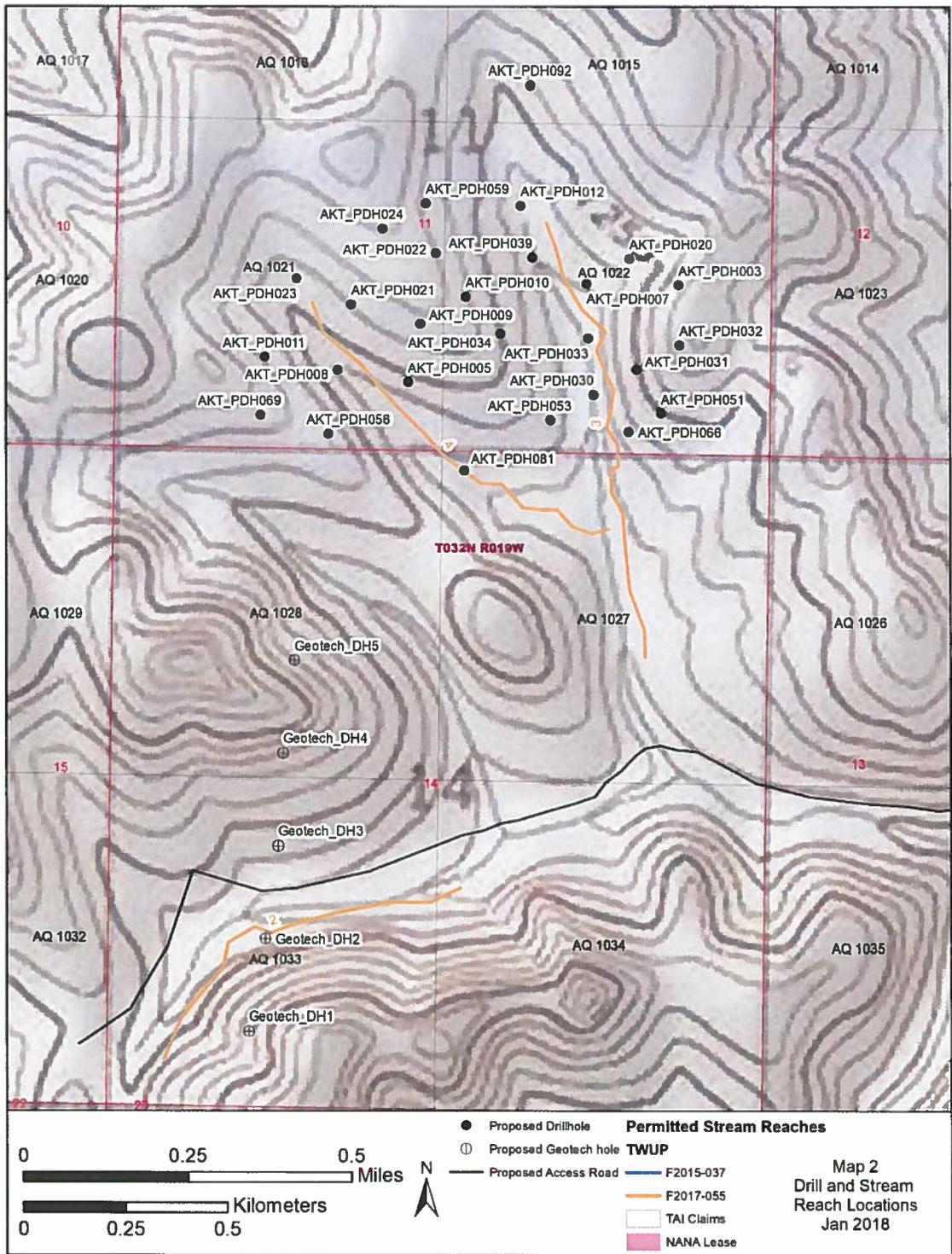
Bonding

For purposes of the NAB permit, Teck continues to maintain a bond in the Department of Natural Resources Statewide Bond Pool for work in the project area.

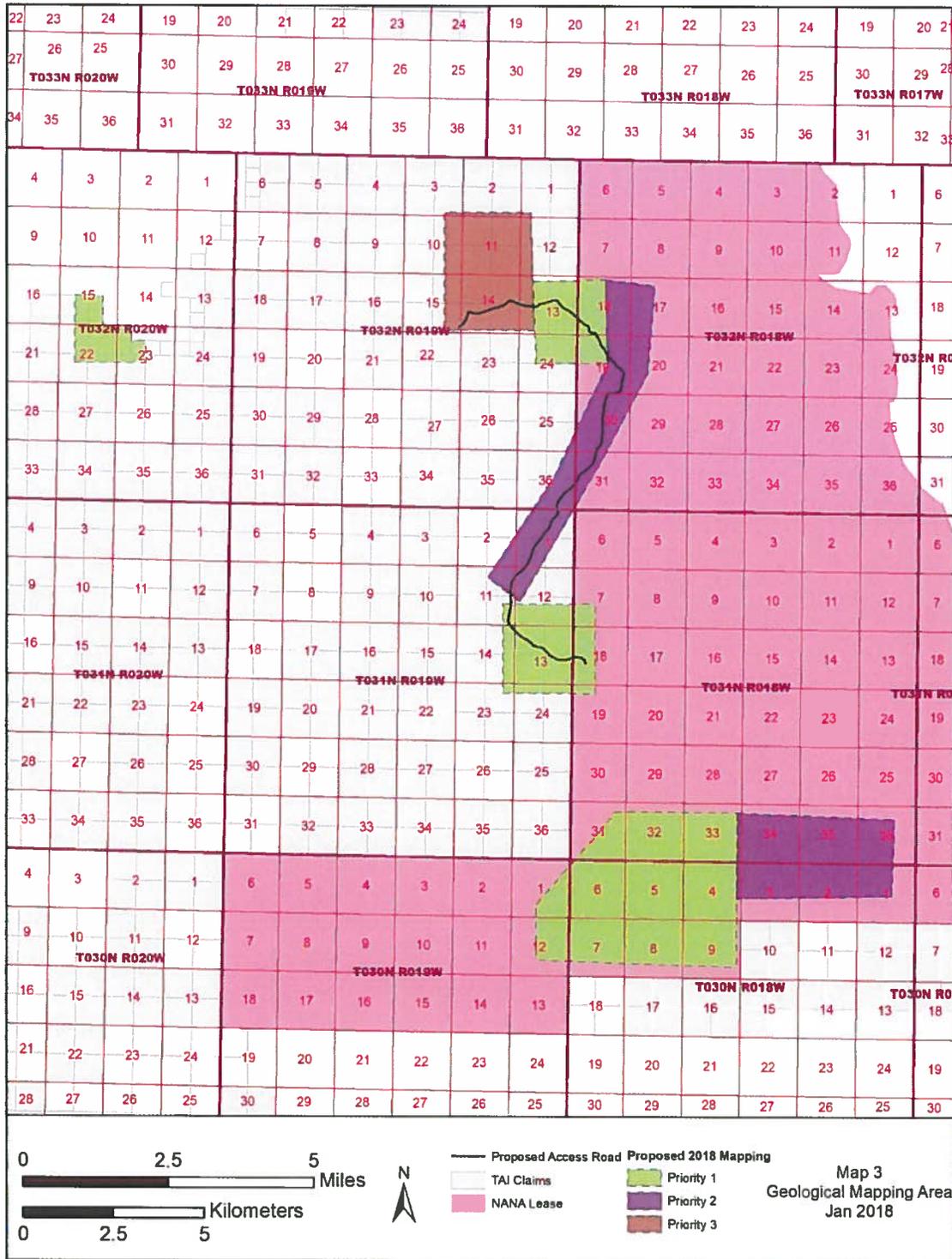


Map 1. Exploration Program Locations and Overview

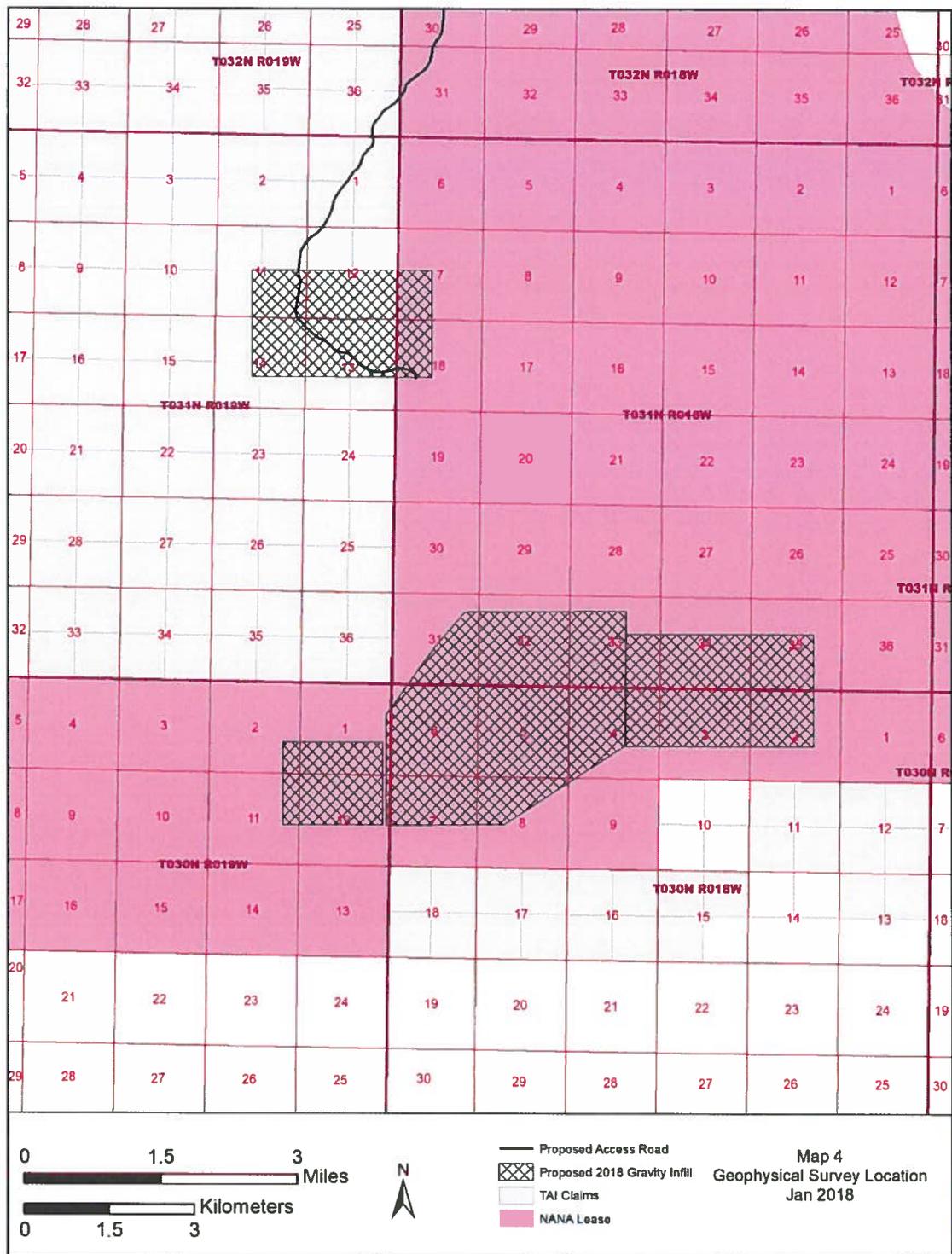
Teck American Incorporated
 Exploration Narrative
 APMA 2018 Summer



Map 2. Drill and Stream Reach Locations



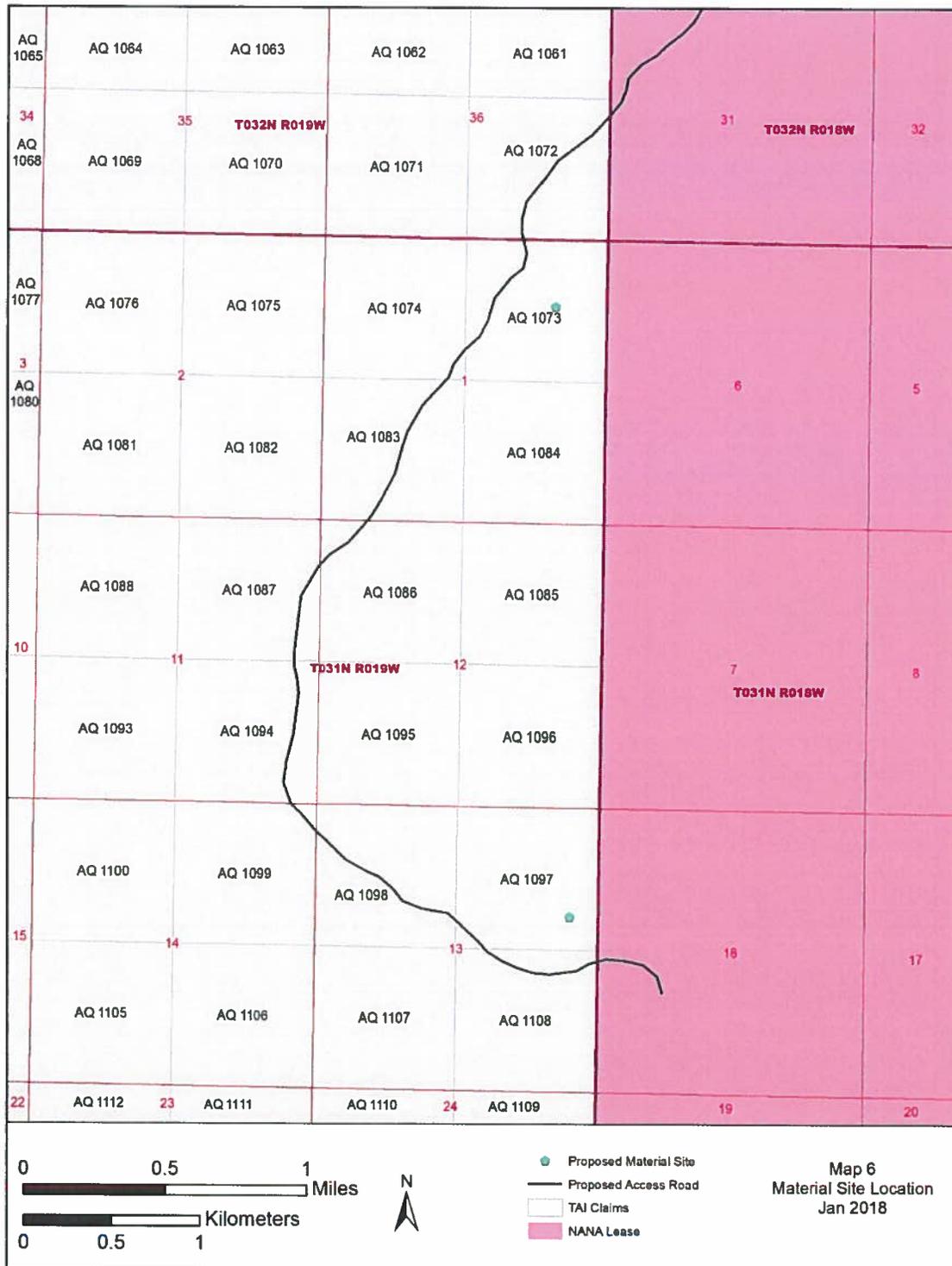
Map 3. Geological Mapping Areas.



Map 4. Geophysical Survey Locations.



Map 5. Red Dog Creek auger locations for bridge-abutment geotechnical data collection.



Map 6. Road construction material site proposed locations for investigation.



Certified – Return Receipt

And by email: jack.kerin@alaska.gov

December 11, 2017

Jack Kerin
State of Alaska – Dept. of Natural Resources
Division of Mining Land and Water – Mining Section
3700 Airport Way
Fairbanks, AK 99709-4699
By email: jack.kerin@alaska.gov

Dear Jack:

Re: Annual Reclamation Statement for APMA #17-9339

Attached with this email is the 2017 reclamation statement for our APMA.

Seventeen holes were drilled on State mining claims this season. Areas set aside as a staging area for lumber, fuel and helicopter landing that will be used next year, as well as some locations where drill platforms remain because of end-of-season weather issues, have been calculated as unreclaimed. We also completed reclamation on a number of locations from 2015 and 2016 which were not reclaimed in those seasons. Maps and photos are attached for your reference.

Acreage in the 2018 letter of intent may be revised as TAI's exploration plans for next year are developed.

A hard copy of the statements and drill site photos will follow for your records.
Please let me know if you have any questions or concerns.

Sincerely,


Catherine Suda
Manager, Us Land & Assets

enc.

Cc: jeffrey.rogers@alaska.gov

2017 ANNUAL RECLAMATION STATEMENT

(32)

Placer Mining

Suction Dredging

APMA # : 17-9339.

X Hardrock Exploration

Complete and return this statement by December 31, 2017. If you did not operate, fill in name, check bottom box, sign and return form.

In accordance with AS 27.19 (Reclamation Act):

I, Catherine Suda, Manager, US Land & Assets for Teck American Incorporated hereby file an annual reclamation statement for the 2017 mining operation described in subject Application for Permits to Mine in Alaska. (Submission of this statement does not constitute reclamation approval.)

Volume of material disturbed in 2017: 0 cubic yards (includes strippings and processed material).

Sluice days last season: N/A Cubic yards of material processed daily: N/A Annually : N/A.

Total acreage disturbed in 2017: 1.134 acres. (Includes stripped areas, mining cuts, overburden and tailing stockpiles and disposal areas, temporary stream diversions, stream bypasses, and settling ponds). Federal operators should include area of camp and access roads.

Length N/A feet and Width N/A feet of stream diversion.

Stream diversion: Temporary Permanent (check one).

Total area reclaimed in 2017: 0.374 acres.

Total un-reclaimed acres: 0.76 (This should match "total acreage currently disturbed" on the 2017 reclamation/signature page)

For the areas reclaimed, the following reclamation measures were used (check only measures that were used). You must include photographs or videotapes of the completed reclamation work:

Spread and contoured tailings

Spread topsoil, vegetation, overburden muck or fines on the surface of contoured tailings

Reestablished flood plain with stream channel in stable position

Ponds are reclaimed

Backfilled and reclaimed temporary stream diversions

Camp removed, cleaned up and left free of debris

Hardrock Exploration : Complete and submit an electronic Annual Reclamation Report

Other reclamation measures taken:

Drill holes plugged, drill cuttings spread on surface, wood and debris removed from site. Note that wood platforms and silt fencing remain at several sites and will be removed next season.

~~I did not operate in 2016 and therefore did not conduct reclamation.~~

Relationship to Claim(s)

Owner Lessee Operator

X Agent For: Teck American

Catherine Suda

Signed

12/11/17

Date

Teck

Teck American Incorporated
APMA 17-9339

Noatak Project

DH site reclamation

2017 Exploration Program

2017 Drilling Reclamation Summary

- None of the proposed geotechnical holes were completed this season.
- 17 of 29 proposed 2017 core drill holes completed
- 36 sites were addressed for annual reclamation
 - 12 reclaimed, including hold-overs from previous seasons;
 - 9 sites need additional work;
 - 5 pads built in preparation for 2018;
 - 10 sites not reclaimed
- 1 Anarraaq area lumber storage site and pump station left open in 2016 were reclaimed.
- No holes had artesian flow
- 2 holes were not drilled to total planned depth and have been filled with mud for re-entry next season. All other drill holes have been plugged according to State standards

Completed Hole Coordinates & Reclamation Status 2017

HOLEID	Proposed HOLEID	DH YEAR	DEPTH	Reclamation	Comment	East_ASP07	North_ASP07	Elevation
DDH1737	PDH_AKT_16001	2016	3437	2016 Drill pad still standing		570399.596	5185798.904	1342.12
DDH1747	AKT_PDH013	2017	3516.5	2017 Not reclaimed		570120.989	5185913.279	1327.04
DDH1748	AKT_PDH055	2017	2562	2017 Not reclaimed		570710.834	5184396.951	1215.28
DDH1749	AKT_PDH038	2017	3192	2017 Drill pad foundation still standing		570400.036	5185152.48	1229.25
DDH1750	AKT_PDH016	2017	3628	2017 Not reclaimed		569745.118	5186618.668	1401.76
DDH1753	AKT_PDH062	2017	3402	2017 Not reclaimed		569798.561	5187611.162	1200.9
DDH1754	AKT_PDH019	2017	3063	2017 Not reclaimed	Decking, rods, rod crib, netting, and silt fencing are currently at site	570371.88	5184675.906	1275.22
DDH1755	AKT_PDH002	2017	2426	2017 Drill pad still standing	and will need to be removed.	571480.819	5184833.032	1243.08
DDH1756	AKT_PDH068	2017	1951	2017 Not reclaimed		573199.399	5185389.897	1394.88
DDH1757	AKT_PDH058	2017	2967	2017 Not reclaimed	Contouring and possible lumber under snow. Drill site requires follow-up in 2018	571258.94	5186126.405	1249.5
DDH1758	AKT_PDH069	2017	3165	2017 Drill pad still standing	Drilling will continue at this site in 2018.	569511.161	5184642.626	1349.84
DDH1759	AKT_PDH070	2017	2324.5	2017 Drill pad still standing	Pad, deck, rod rack, and netting are currently at site. Drilling will continue at this site and will need to be removed.	572663.167	5186544.875	1358.75
DDH1760	AKT_PDH006	2017	2805	2017 Drill pad still standing	Pad, decking, and silt fencing are currently at site. Drilling will continue at this site in 2018.	571076.84	5185078.591	1254.13
DDH1761	AKT_PDH031	2017	568	2017 Drill pad still standing	Pad, decking, and silt fencing are currently at site and will need to be removed.	572500.095	5185002.031	1208.13
DDH1762	AKT_PDH050	2017	1677	2017 Drill pad still standing		572210.244	5183904.216	1055.06
DDH1721	PDH_AN_15010	2015	2453	2015 Reclaimed		569800.02	5178095.04	1574.93
DDH1725	PDH_AN_15013	2015	2439	2015 Reclaimed		569800.02	5178095.04	1574.93
DDH1727	PDH_AN_15012	2015	2470.6	2015 Reclaimed		569800.02	5178095.04	1574.93
DDH1733	PDH_AN_15014	2015	2401	2015 Reclaimed		569800.02	5178095.04	1574.93
DDH1738	PDH_AN_16001	2016	2550	2016 Reclaimed	Directional hole with DDH1742	569374.876	5177821.091	1512.25
DDH1740	PDH_AN_16002	2016	2424	2016 Reclaimed		569428.819	5176939.173	1510.55
DDH1741	PDH_AN_16005	2016	1865	2016 Reclaimed		568999.611	5176001.753	1227.16
DDH1744	PDH_AN_16003	2016	2422	2016 Reclaimed		569175.002	5177080.001	1413.99
DDH1742	PDH_AN_16001	2016	2511	2016 Reclaimed	Directional hole with DDH1738	569374.876	5177821.091	1512.25
DDH1743	PDH_AN_16007A	2016	2354	2016 Reclaimed		569333.532	5177344.012	1453.37
DDH1745	PDH_AKT_16004	2016	2003	2016 Reclaimed		572000.002	5184400.001	1152.59
DDH1746	AKT_PDH035	2017	2357	2017 Reclaimed		571767.475	5185473.474	1189.01
DDH1751	AKT_PDH067	2017	2244	2017 Reclaimed		571470.326	5184391.496	1178.81
DDH1752	AKT_PDH040	2017	2264.5	2017 Reclaimed		572020.715	5186089.404	1182.88
ANA_Lumber lay down		2016	0	2016 Reclaimed		567807.822	5175766.852	
ANA_Pump station		2016	0	2016 Reclaimed		566489.462	5175297.921	

Other unreclaimed locations on State Mining Claims

Site ID	Proposed HOLEID	YEAR	Reclamation	Comment	East ASP07	North ASP07	Elevation
AKT_Pump station			2017 Drill pad foundation still standing	Foundation remains and will need to be removed.	572141.143	5184858.385	
AKT_PDH008	AKT_PDH008	2017	2017 Drill pad foundation still standing	Foundation built in preparation for 2018 field season.	570206.84	5185007.428	1606.92
AKT_PDH021	AKT_PDH021	2017	2017 Drill pad foundation still standing	Foundation built in preparation for 2018 field season.	570317.612	5185513.333	1623.81
AKT_PDH023	AKT_PDH023	2017	2017 Drill pad foundation still standing	Foundation built in preparation for 2018 field season.	569871.511	5185775.143	1873.08
AKT_PDH024	AKT_PDH024	2017	2017 Drill pad foundation still standing	Foundation built in preparation for 2018 field season.	570559.568	5186172.29	1592.06
AKT_PDH059	AKT_PDH059	2017	2017 Drill pad foundation still standing	Foundation built in preparation for 2018 field season.	570900.667	5186368.882	1415.78
AKT_Lumber lay down			2017 Not reclaimed	Drill rods, rod crib, rod racks, emergency shelter, and lumber at site for next season.	572022.288	5184398.666	
AKT_Water bladder			2017 Not reclaimed	Hoses and building material still remain at site and need to be removed.	570273.945	5186779.433	

DH 1746



pre-drilling



drilling



post-drilling



Dh 1747

pre-drilling



drilling



**post-drilling – silt fencing
remains**



DH 1748

pre-drilling



drilling



**post-drilling – silt fence
remains**



Dh 1749

pre-drilling



drilling



post-drilling drill pad
foundation remains



Dh 1750
This site has
not been reclaimed

pre-drilling



drilling



post-drilling



DH 1751

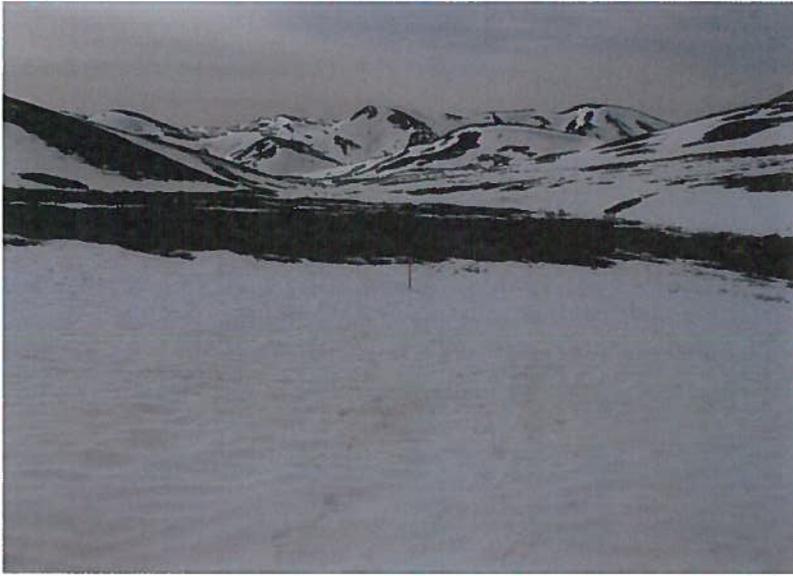
pre-drilling



Pad construction



post-drilling



DH 1752

pre-drilling



drilling



post-drilling



DH 1753
This site has
Not been reclaimed

pre-drilling



drilling



post-drilling



DH 1754
This site has
Not been reclaimed

pre-drilling



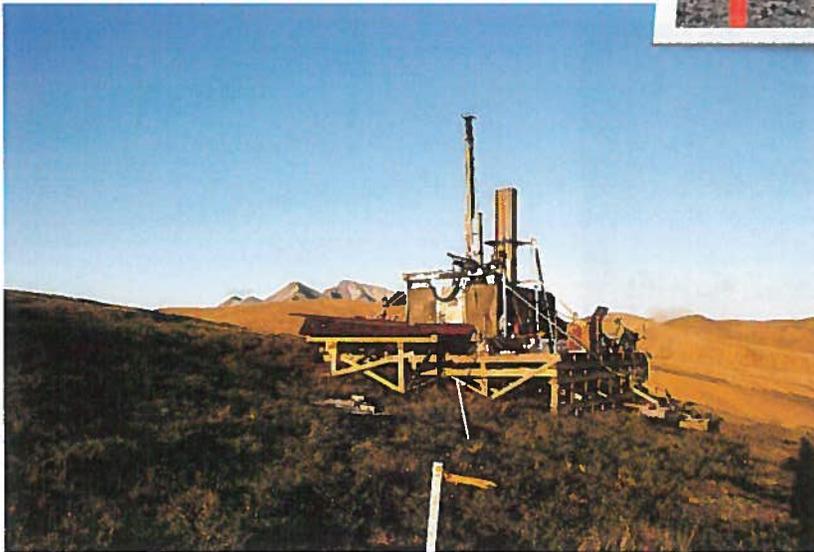
drilling



post-drilling



DH 1755
This site has
Not been reclaimed



pre-drilling – reported in 2016 as
prepared and not drilled-
site AKT-160002
(see inset photo above)

drilling



**post-drilling - Decking, rods, rod
crib, netting, and silt fencing are
currently at site**



Dh 1756
This site has
Not been reclaimed

pre-drilling



drilling



post-drilling



DH 1757
This site has
Not been reclaimed

pre-drilling



drilling



post-drilling - Contouring and
possible lumber under snow.



DH 1758

pre-drilling



drilling

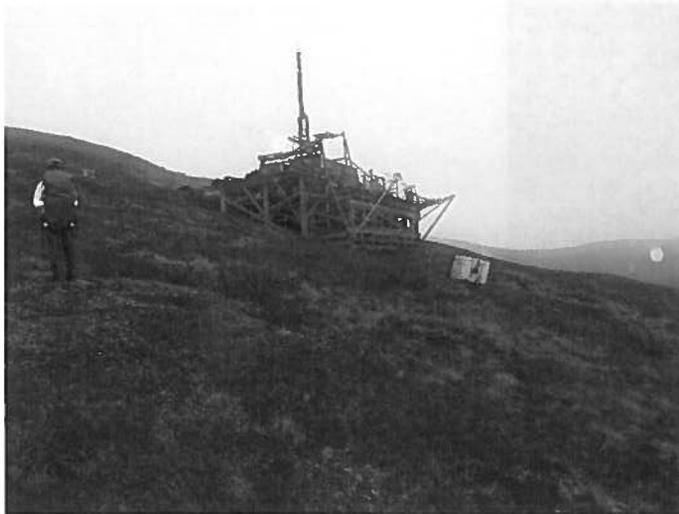


**post-drilling - Pad, deck, rod rack,
and netting are currently at site**



**DH 1759 This site has
Not been reclaimed**

pre-drilling



drilling



**post-drilling - Pad, deck, rod rack,
and netting are currently at site**

**DH 1760 This site has
Not been reclaimed**



pre-drilling



drilling



drilling - Pad, deck, rod rack,
and netting are currently at site

No post-drilling photo



**DH 1761 This site has
Not been reclaimed**

pre-drilling

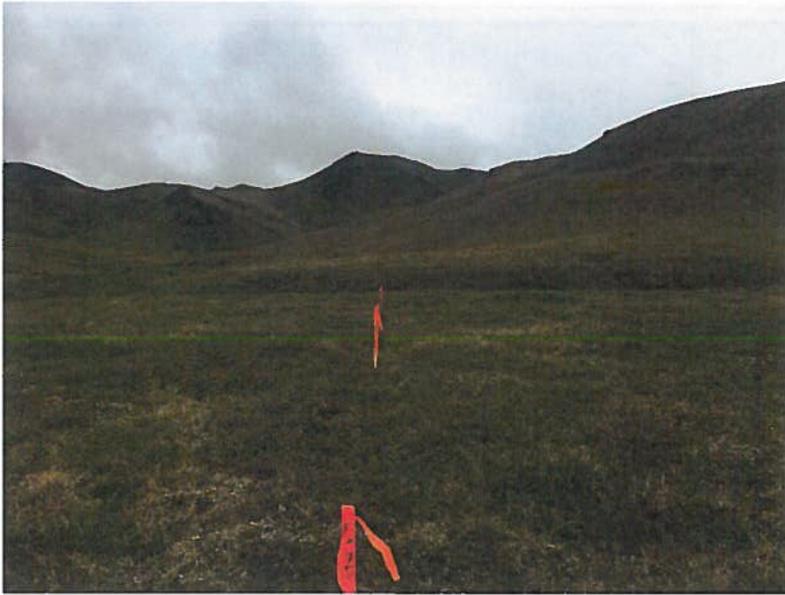


drilling



**drilling - Pad, deck, rod rack,
and netting are currently at site**

No post-drilling photo



**DH 1762 This site has
Not been reclaimed**

pre-drilling



drilling



**Post-drilling - Pad, deck, rod rack,
and netting are currently at site**



Anarraaq Lumber laydown site –
carried over from 2013 reclaimed in 2017



**DH 1721 location is also the
Collar site for 1725, 1727, 1733
Holes completed in 2015.
Reclaimed in 2017**

pre-drilling

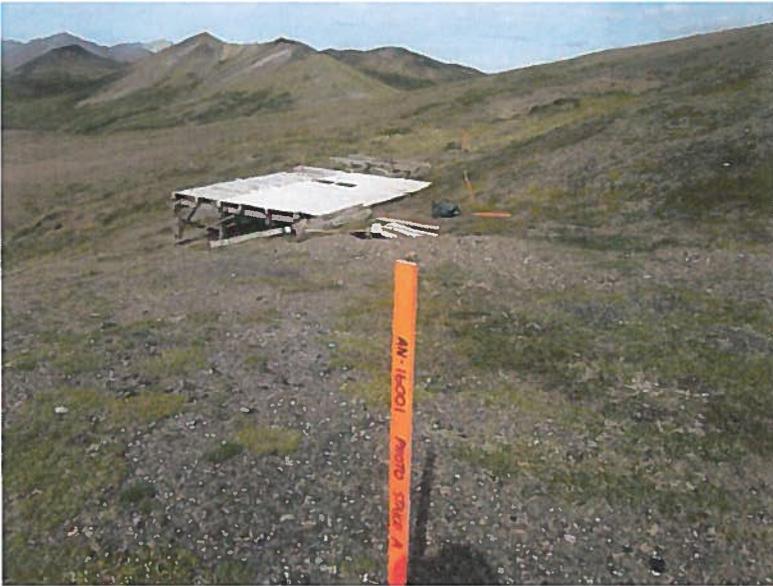


post-drilling



Post-reclamation, 2017

DH 1738, 1742,
common pad drilled 2016,
Reclamation completed 2017



Pad, facing N



Post reclamation, 2017

**DH 1740
Drilled 2016,
Reclaimed 2017**



During 2016 Drilling



Post reclamation
October, 2017



**Dh 1741, drilled 2016,
reclaimed 2017**

During Drilling, 2016



Pad, before drilling,
remains on site



Post reclamation,
October, 2017

**DH 1743 drilled 2016,
Reclaimed 2017**



During 2016 Drilling



Post reclamation,
October 2017

**DH 1744, drill pad remained on site,
Reclaimed 2017**



2016 Pad construction



Post reclamation,
October, 2017

**Dh 1745, pad remained on site,
Reclaimed 2017**

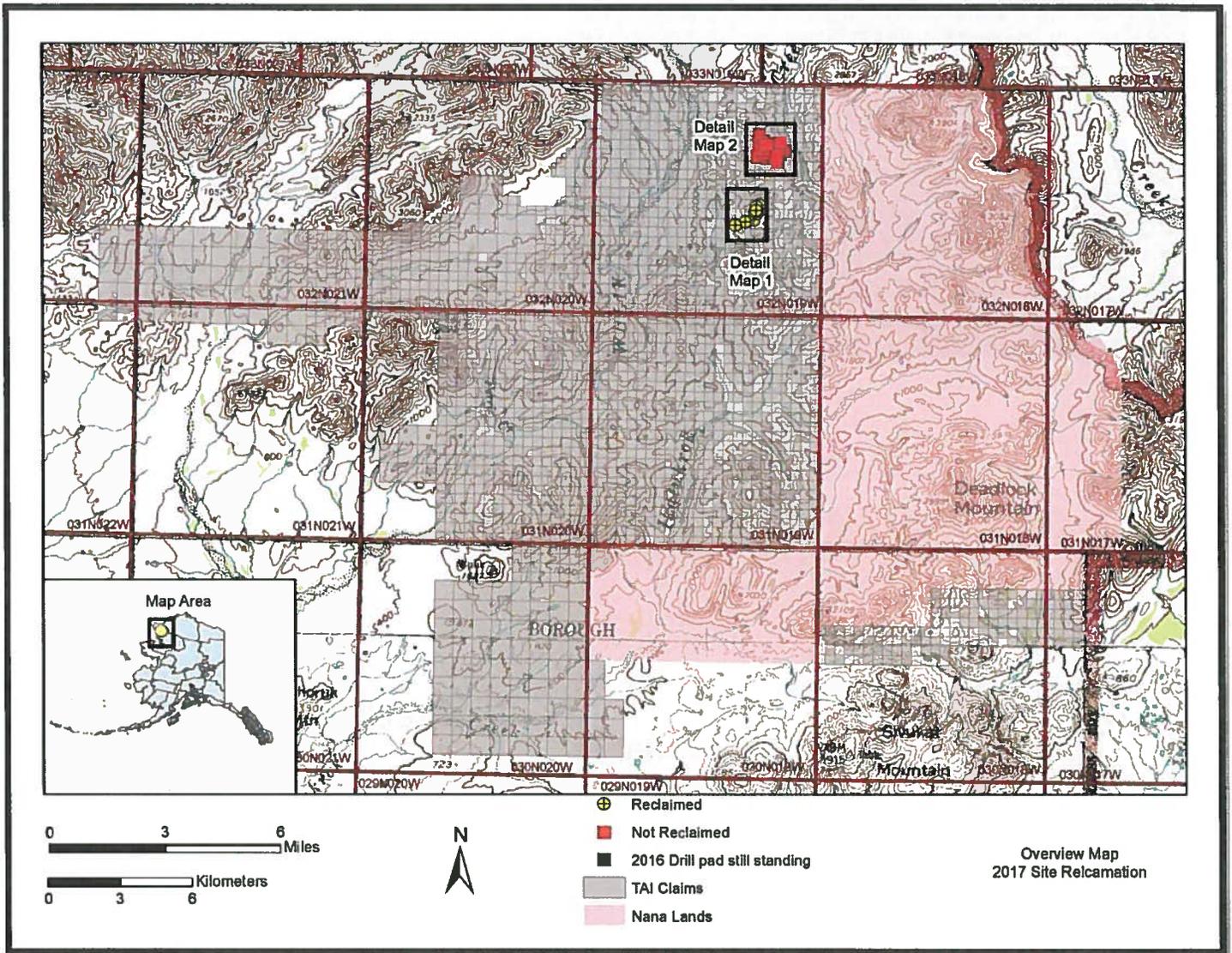


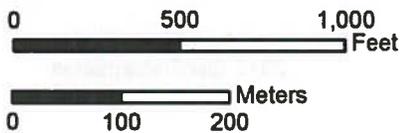
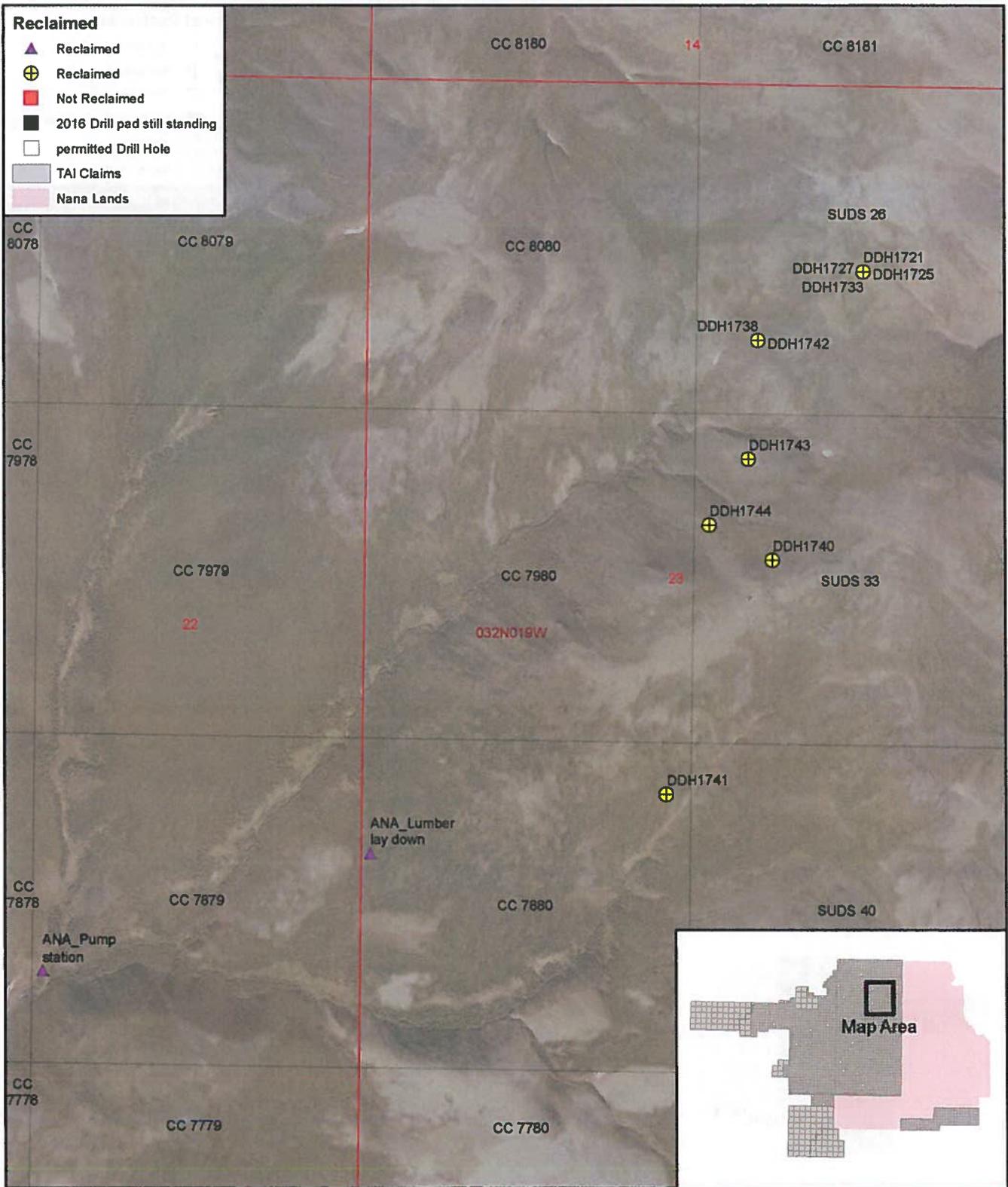
During 2016 drilling

No reclamation photo available

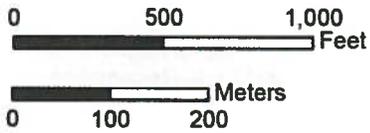
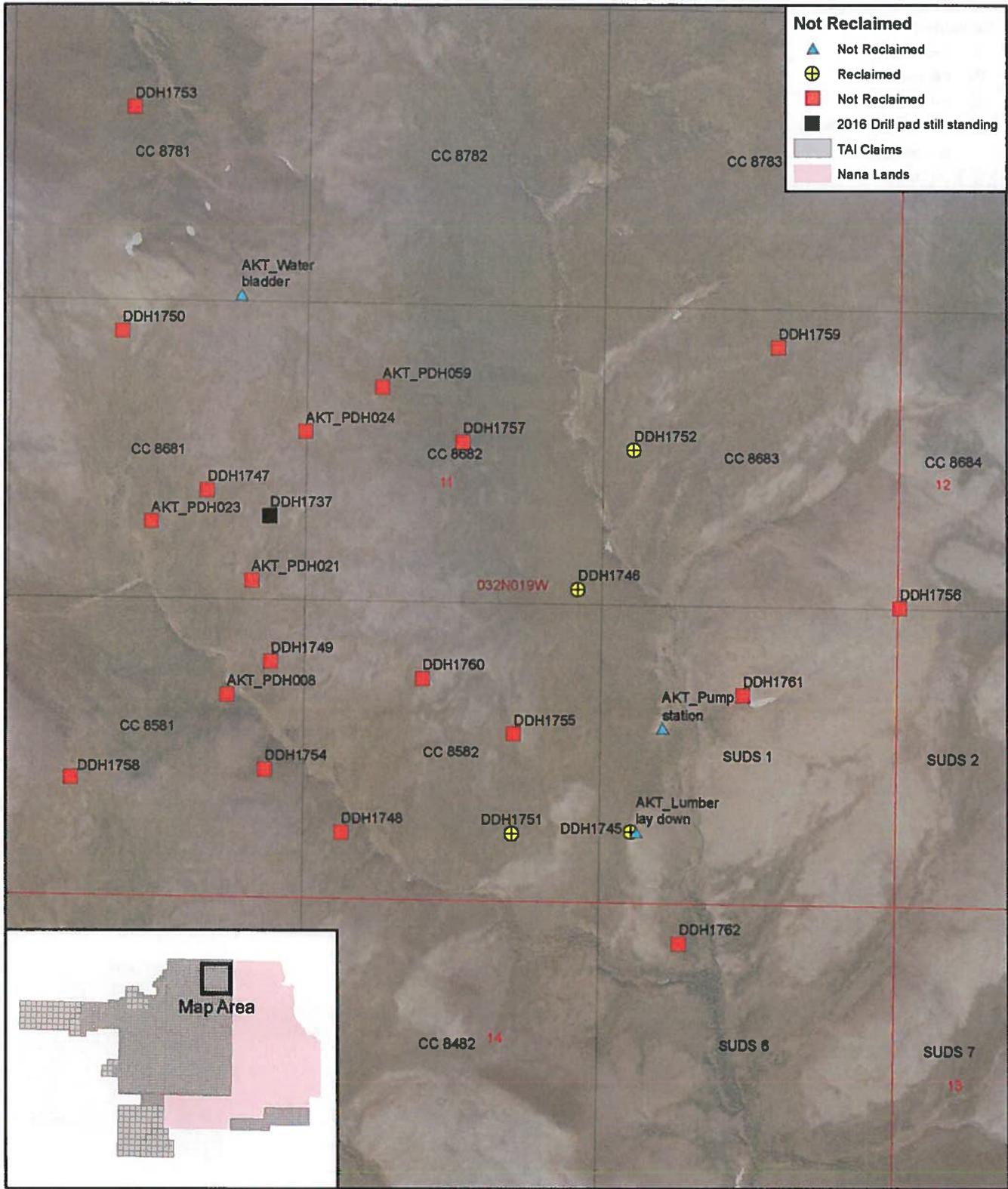
Post reclamation 2017

Overview of completed drill hole locations





Detail Map 1
2017 Site Relcamation



Detail Map 2
2017 Site Relcamation

RECLAMATION PLAN

(33)

RECLAMATION PLAN

(Disturbed Area 5 Acres Or Greater or BLM Notices)

X LETTER OF INTENT TO DO RECLAMATION

(Disturbed Area Less Than 5 Acres)

In accordance with Alaska Statute 27.19, reclamation is required of all mining operation. Reclamation bonding is required of operations with disturbance of 5 acres or greater. Completion of this application will meet the requirements for a "Reclamation Plan" for operations 5 acres and larger in size and "Letter of Intent To Do Reclamation" for operations under 5 acres. If you do not intend to use the reclamation methods presented below, please provide additional information concerning your plans for reclamation under separate attachments.

BLM requires that the reclamation plan be consistent with §43 CFR 3809.420, Performance Standards for the Surface Management regulations. Refer to 43 CFR 3809 or the BLM minerals website available at http://www.blm.gov/ak/st/en/prog/minerals.html for more information on what is needed for a reclamation plan.

Total acreage currently disturbed: 0.76 acres. This should match: "Total Unreclaimed Acres" on your 2017 Annual Reclamation Statement for Small Mines, or line #7 on your 2017 Bond Pool Renewal Form. Disturbed ground includes all unreclaimed mining and exploration activity (excluding camps and roads) since October 1991. Federal operators must include areas of camps and roads.

New acres to be disturbed in 2018 4.0 acres. Total acreage (currently disturbed plus new acres): 4.76 acres.

Acreage disturbed by land status: 3.76 State (general) State (Mental Health) 1 Private Federal

Total acreage to be reclaimed in 2017: 4.76 acres; and:

Reclamation conducted concurrently with the exploration. Reclamation will be conducted at the end of the exploration season

Total volume of material to be disturbed in 2017: 0 cubic yard. (Including strippings and overburden to be removed. (1 acre of disturbance is equal to 4,840 square yards).

The following reclamation measures shall be used. (These measures are required by law. Those that do not apply may be crossed out; but, an explanation must be given as to why these measures are not necessary at your site.)

- Topsoil, vegetation, and overburden muck, not promptly redistributed to an area being reclaimed, will be individually separated and stockpiled for future use. This material will be protected from erosion and from contamination by acidic or toxic materials and will not be buried by tailings.
• The area reclaimed will be reshaped to blend with the surrounding area using tailings, strippings, and overburden and be stabilized.
• Stockpiled topsoil, overburden muck, will be spread over the contoured exploration sites to promote natural plant growth such that the area can reasonably be expected to revegetate within five years. Stockpiled vegetation will be spread over topsoils.
• Exploration trenches will be backfilled. Brush piles, stumps, topsoil, and other organics will be spread on the backfilled surface to inhibit erosion and promote natural revegetation. Exploration trenches shall be flagged and signs posted to notify the public of the existence of the open trenches. All exploration trenches shall be reclaimed by the end of the exploration season in which they are constructed, unless specifically approved by the DMLW.
• Shallow auger holes (limited to depth of overburden) shall be backfilled with drill cuttings or other locally available material in such a manner that closes the hole to minimize the risk to humans, livestock and wildlife.
• All drill hole casings shall be removed or cut off at, or below, ground level. All drill holes shall be plugged by the end of the exploration season with bentonite holeplug or equivalent slurry, for a minimum of 10 feet within the top 20 feet of the drill hole. The remainder of the hole will be backfilled to the surface with drill cuttings. If water is encountered in any drill hole, a minimum of 7 feet of bentonite holeplug or equivalent slurry shall be placed immediately above the static water level in the drill hole. Complete filling of the drill holes, from bottom to top, with bentonite holeplug or equivalent slurry is also permitted and is considered to be the preferred method of hole closure during which they are drilled, unless otherwise specifically approved by the DMLW.
• If artesian conditions are encountered, the operator shall contact the DMLW (Kindra Geis (907) 451-2790) or the DEC (Tim Pilon at 907 451-2136) for hole plugging requirements.
• All buildings and structures constructed, used or improved, on State land, will be removed, dismantled, or otherwise properly disposed of at the completion of exploration. The campsite will be cleaned up and left free of debris. In consideration of potentially significant historic properties/cultural resources, please do not remove or disturb any buildings, structures, objects, or artifacts that were located on the site prior to the current operation without preauthorization from SHPO (Contact Mckenzie Johnson of SHPO at (907) 269-8726 or mckenzie.johnson@alaska.gov).

IMPORTANT: 1. Alternative reclamation measures may be approved if the reclamation measures presented above are not applicable to your site. Please explain in separate correspondence. Submit a sketch and describe additional reclamation measures you propose to conduct at your operation. Reclamation measures must comply with AS 27.19.

2. Federal land managers may require reclamation measures different to those identified above.

BONDING: In accordance with AS 27.19, bonding is required for all operations having a mined area of >five acres on State Land. This area must be bonded for \$750.00 per acre, unless the miner can demonstrate that a third party contractor can do the needed reclamation for less than that amount. A Statewide bonding pool has been established and may be joined by completing the bond pool application form. No reclamation plan approval goes into effect until the bonding pool deposit and annual nonrefundable fee are paid. Federal land managers may have additional bonding requirements. Use bond form to calculate area of disturbance for bonding.

Form with three columns: Applicant information (Catherine Suda, Signature), Relationship to Claim(s) (X Agent For: Teck American), and Date/APMA # (Date: Dec. 11, 2017, APMA #: xx- 9339)